PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE APPLICATION OF:

EDGAR B. CAHOON ET. AL. CASE NO.: BB1413 US NA

SERIAL NO.: 09/732597 GROUP ART UNIT: 1646

FILED: DECEMBER 08, 2000 EXAMINER: ELIZABETH MCELWAIN

FOR: ENZYMES INVOLVED IN PETROSELINIC ACID BIOSYNTHESIS

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Office Action dated January 29, 2003 regarding the above-referenced application. Applicants respectfully request reconsideration and submit the following in support thereof:

AMENDMENTS TO SPECIFICATION:

Delete paragraph page 5, lines 10-15 :

~~Figure 3 shows a mass spectral identification of novel (A) hexadecenoic acid (16:1), and (B) octadecenoic acid (18:1) isomers in transgenic tobacco callus expressing the *Hedera helix* acyl-ACP desaturase (clone ehh1c.pk002.f22, SEQ ID NOs:1 and 2). The mass spectra shown were obtained by gas chromatography-mass spectrometry (GC-MS) of dimethyl disulfide (DMDS) derivatives of fatty acid methyl esters from tobacco callus expressing the cDNA for EST ehh1c.pk002.f22.~~

Amend page 33, lines 1-12:

Δ^4 isomer ~~(Fig. 3A)~~. In addition, the mass spectrum of the dimethyl disulfide derivative of the novel 18:1 methyl ester in the transgenic tobacco callus contained diagnostic ions consistent with that of petroselinic acid, the 18:1Δ^6 isomer ~~(Fig. 3B)~~. These results thus indicate that the diverged acyl-ACP desaturase corresponding to the cDNA for EST ehh1c.pk002.f22 is associated with petroselinic acid synthesis. Based on the biosynthetic pathway for petroselinic acid previously described in Umbelliferae species [Cahoon, E.B. and Ohlrogge, J.B. (1994) *Plant Physiol.* 104:827-844], the *Hedera helix* diverged acyl-ACP desaturase is likely a Δ^4-specific palmitoyl (16:0)-ACP desaturase. This is consistent with the presence of the novel 16:1Δ^4 isomer in the transgenic tobacco callus ~~(Fig. 3A)~~. The 16:1Δ^4 isomer bound to ACP likely serves as the biosynthetic precursor for petroselinic acid (18:1Δ^6), as